

**ALD REACTOR AND METHOD WITH CONTROLLED WALL  
TEMPERATURE**

Abstract of the Disclosure

5       The present invention relates to improved methods and apparatus for atomic  
layer deposition (ALD) of thin films on substrates such as wafers and flat panel  
displays. The invention provides an ALD reactor comprising a first temperature  
regulating system to control the temperature of the substrate and a second temperature  
regulating system to independently control the temperature of the reaction chamber  
10       walls. The invention also provides a method for ALD of a film onto a substrate in a  
reaction chamber, in which the temperature of the substrate is maintained to maximize  
ALD on the substrate while the temperature of the reaction chamber walls is set to  
minimize film growth thereon, whether by ALD, condensation, physisorption or thermal  
decomposition. The temperature of the walls may be maintained at the same  
15       temperature as the substrate, or higher or lower than the substrate temperature,  
depending upon the particular reaction being used.

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